

Source Water Assessment Program (SWAP) Report

For

T.J. MAXX PLAZA



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

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Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	T.J. MAXX PLAZA
<i>PWS Address</i>	MIDDLESEX ROAD
<i>City/Town</i>	TYNGSBORO
<i>PWS ID Number</i>	2301037
<i>Local Contact</i>	CHRIS BIBBY
<i>Phone Number</i>	(603) 886-4985

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #2	2301037-02G	225	551	Moderate
Well #3	2301037-03G	275	728	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential source of contaminant including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. Description of the Water System

T.J. Maxx Plaza gets its water supply from two bedrock wells (Wells #2 and #3).. Well #2 has a Zone I of 225 feet and an IWPA of 551 feet. Well #3 has a Zone I of 275 feet and an IWPA of 728 feet. Well #2 is 335 feet deep, and Well #3 is 340 feet deep. During drilling, unconsolidated material, consisting of medium to coarse sand and gravel was encountered. Please refer to the attached map of the Zone I and IWPA.

The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration.

The wells serving the facility have no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone Is;**
2. **Septic system; and**
3. **Wastewater treatment plant.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate threat land uses or activity in the IWPA.

1. **Zone Is** - Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contain the cinema buildings, roads, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Keep non-water supply activities out of the Zone Is.
- ✓ Remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ If the facility intends to continue utilizing the structures, roads, and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Septic system** - The septic system is located within the IWPA. If improperly used and maintained, septic systems are a potential source of contamination in groundwater and the water supply.

Recommendations:

- ✓ Maintenance staff should be instructed on proper disposal of spent household chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

3. **Wastewater treatment plant** - The facility does have a working wastewater treatment plant on-site. Although there are no records of problems at the site,

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Commercial Property	Parking lot and road	Both wells	Both wells	Moderate	Limit road salt usage and provide drainage away from wells
	Septic System	No	Both wells	Moderate	See septic systems brochure in the appendix
	Transportation corridor	No	Both wells	Moderate	Route 3
	Wastewater treatment plant	No	Both wells	Moderate	Sewer pipes are encased

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

wastewater overflows are a potential source of microbial and non-microbial contamination if improperly managed.

Recommendation:

- ✓ Ensure that any overflows discharge outside of the protection areas.
- ✓ Operate and maintain the wastewater treatment facility according to DEP requirements.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. T.J. Maxx Plaza should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Do not use road salt within Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

Planning:

- ✓ Work with local officials in Tyngsboro to include T.J. MAXX Plaza IWPA's in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

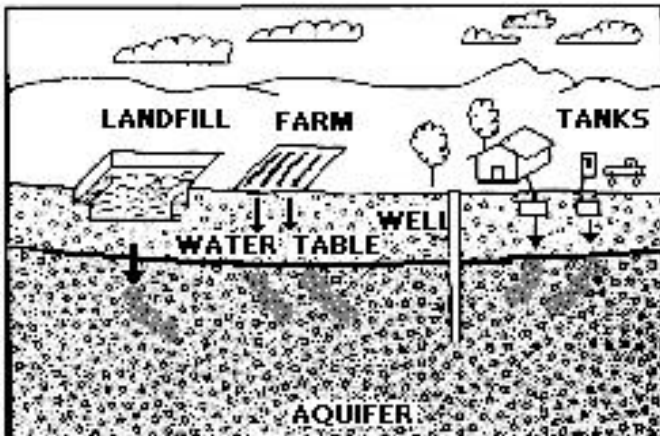


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix